DNV·GL

Certificate No:
**MEDB00003WA**

# EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV GL AS under the authority of the Government of Norway.

## This is to certify:

**That the Helicopter facility foam fire-fighting appliances**

with type designation(s)
**Deck Integrated Fire Fighting — Pop-up Nozzle"**

Issued to
## Matre Maskin AS
**Rubbestadneset, Norway**

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2017/306,**
**item No. MED/3.67. SOLAS 74 as amended, Regulation II-2/18 and IMO MSC.1/Circ.1431**

Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2023-02-27**.

Issued at **Høvik** on **2018-02-28**

DNV GL local station:
**Haugesund**

Approval Engineer:
**Piotr Orzechowski**

Notified Body
No.: **0575**

for **DNV GL AS**

**Roald Vårheim**
**Head of Notified Body**

NORWEGIAN ACCREDITATION PROD 019

The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.
This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL AS of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.
Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.



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## Product description

"Deck Integrated Fire Fighting — Pop-up Nozzle"
a helicopter deck foam firefighting system composed of pop-up nozzles, pipes, valves, pump(s), strainer, foam proportioner, foam tank with AFFF concentrate and control system.

The nozzles are installed flush with the deck. When the system is released the nozzles will be lifted by the water pressure and make an effective spray distribution of water/foam mixture to the entire landing area.

Only the nozzles are type approved by this certificate. Pipes, couplings, valves and other systems components are subject to case by case approval. The system is to be designed in accordance with the "Principal Requirements for the System" in IMO MSC.1/Circ.1431.

## Application/Limitation

Approved as a fixed fire extinguishing system for helidecks and helicopter landing areas.

The nozzles are to be installed to the following specifications:

| | |
|---|---|
| Helicopter deck area (D-value) | 14.3–31 m |
| Number of nozzles (n) | 7-28 |
| Application rate (q)*) | 6 lpm/m2 |
| Nozzle spacing: | Ref. layout drawings below |
| Nozzle working pressure: | 4-6 bar |
| Nozzle orientation: | Pop-up |
| Foam mixture | 1-6% |
| Note:<br>*)The application rate shall be 6 lpm/m2 as it is required by IMO MSC.1/Circ.1431. If the flag Administration has specific requirements this will prevail. | |

Nozzle information:

| | |
|---|---|
| k-factor | 37.5–101 lpm/bar$^{1/2}$ |
| Working pressure | 4-6 bar |
| Nozzle coverage (diameter) | 7 m |
| Nozzle throw height | 6-7 m |
| Flow (q) | 75-247 lpm |
| The nozzles are made of stainless steel or aluminium bronze or titanium.<br>Maximum operating pressure is 20 bar. | |

The following additional applications/limitations apply:

A. Approved pressure range is 4-6 bar.
B. The pump unit is to be delivered with DNV GL product certificate and foam proportioner is to be of approved type. Other system components are to be certified or inspected in accordance with DNV GL Rules.
C. The foam concetrate is to be of approved type.
D. Pipes, couplings and other components are regarded as "Class III" piping
E. The pump unit should be installed in a room having ambient temperature between +4 °C and +45 °C.

The following items are to be submitted for approval for each project:

a) System arrangement plans including location of nozzle, release stations and control circuitry/arrangement;
b) Documentation of power supply and control system;
c) Specification of pipes, pressurised cylinder, generator, pump and associated components;
d) Pressure loss and flow calculations
e) Design, installation, operation and maintenance manual.
f) Each batch of nozzles shall be flow capacity tested at intended working pressure and part of plan approval documeration.

Installation testing:
- System to be function tested.
- Pipe system to be pressure tested to least 1.5 times maximum working pressure.
- All distribution piping shall be blown through with air to ensure that the piping is free from obstructions.
- Function testing of each foam proportioner shall be performed for each installation. The mixing ratio shall be as specified in each application and within a range of -0% to +30% of this (if the specified mixing ratio is 3.0%, test results between 3.0 and 3.9% will be accepted).
- Other tests as required by DNV GL Rules (pressure testing of piping, etc.) or a similar standard acceptable to the Flag Administration and according to maker's manual shall be carried out.

Periodical testing:
- The periodical testing shall comply with instructions from flag administration, DNV GL Statutory Interpretations and maker's maintenance manual.

Each product is to be supplied with its manual for installation, use and maintenance.

## Type Examination documentation

Test reports:
No. 6P02631-1 dated 6 July 2017 from RISE, Borås, Sweden
No. 6P02631-1 dated 21 June 2017 from RISE, Borås, Sweden
No. 6P02631-2 dated 6 July 2017 from RISE, Borås, Sweden
No. 6P02631-3 dated 25 October 2017 from RISE, Borås, Sweden
No. 7P05832 dated 25 October 2017 from RISE, Borås, Sweden
No. D2014009-RA-002 Rev.2 dated 21 November 2017 from manufacturer (witness by DNV GL).
No. 1400017 dated 15 August 2017 from manufacturer (witness by DNV GL).
No. 140017-1 dated 17 January 2013 from manufacturer (witness by DNV GL)
No. 46.14422.102 Rev.0 dated 2 June 2014 from manufacturer (witness by DNV GL)

Layout drawings:
No. D=14.3 dated 12 November 2010 (Layout for deck up to D=14.3)
No. D=18 dated 12 November 2010 (Layout for deck up to D=18)
No. D=21 dated 12 November 2010 (Layout for deck up to D=21)
No. D=23.2 dated 12 November 2010 (Layout for deck up to D=23.2)
No. D=26.1 dated 12 November 2010 (Layout for deck up to D=26.1)
No. D=28.5 dated 12 November 2010 (Layout for deck up to D=28.5)
No. D=31 dated 12 November 2010 (Layout for deck up to D=31)
all from manufacturer

Nozzle- stainless steel:
No. M-DY16-10456 dated 1 December 2015 (AISI 316 K=37.5)
No. M-DY16-10725 dated 6 May 2013 (AISI 316 K=69.5)
No. M-DY16-10457 dated 1 December 2015 (AISI 316 K=101)
all from manufacturer

Nozzle - brass:
No. M-DY16-10459 Rev. 1 dated 1 December 2015 (BS1400 AB2 K=37.5)
No. M-DY16-10461 Rev. 1 dated 1 December 2015 (BS1400 AB2 K=69.5)
No. M-DY16-10463 Rev. 1 dated 1 December 2015 (BS1400 AB2 K=101)
all from manufacturer

Nozzle – titanium:
No. M-DY16-10465 Rev. 1 dated 1 December 2015 (Titanium Gr2 K=37.5)
No. M-DY16-10467 Rev. 1 dated 1 December 2015 (Titanium Gr2 K=69.5)
No. M-DY16-10469 Rev. 1 dated 1 December 2015 (Titanium Gr2 K=101)
all from manufacturer

Installation & User manual number D08 Rev. 7 dated 4 April 2014 from manufacturer.

## Tests carried out

The nozzles are tested as sprayers according to EN 13565-1 (2003) including A1 (2007).

## Marking of product

The product or packing is to be marked according to EN 13565 (2003) + A.1 (2007) Section 11 and the MED Mark of Conformity.